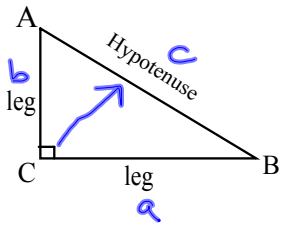
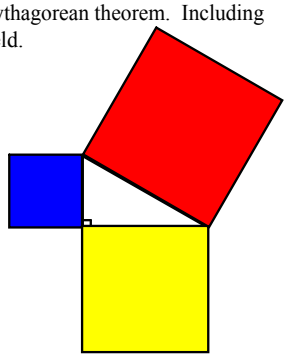
4.4 The Pythagorean Theorem and (The Distance Formula)



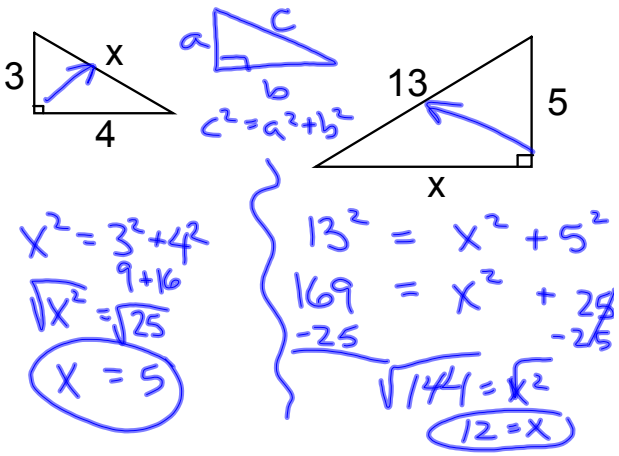
$c^2 = a^2 + b^2$

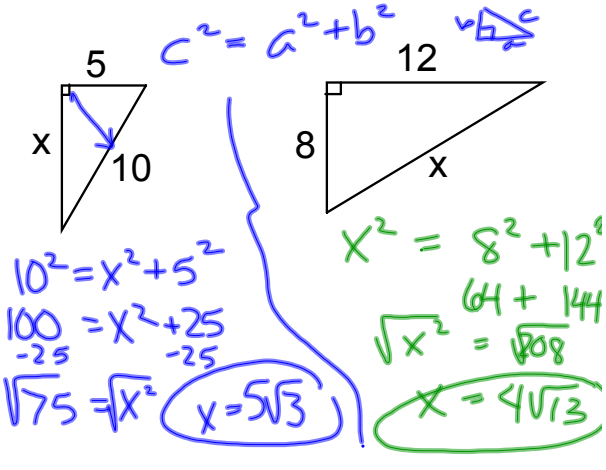
$\text{hypotenuse}^2 = \text{leg}^2 + \text{leg}^2$

There are many proofs of the Pythagorean theorem. Including one written by President Garfield.

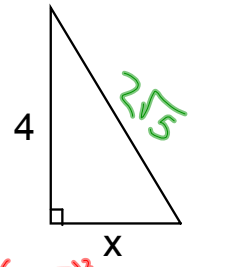


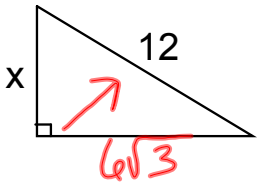
http://www.pbs.org/wgbh/nova/proof/puzzle/theorem.html





208
4 52
22 4 13
22
4 3



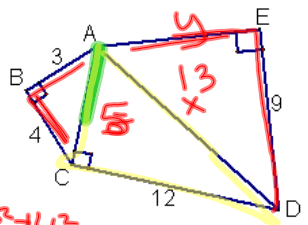


$(2\sqrt{5})^2 = x^2 + 4^2$
$4\sqrt{25}$
$4 \cdot 5$
$20 = x^2 + 16$
$-16 \quad -16$
$\sqrt{4} = \sqrt{x^2}$
$2 = x$

next
5/1 do

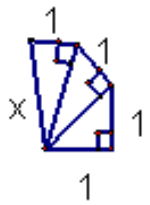
$12^2 = x^2 + (6\sqrt{3})^2$
$144 = x^2 + 36\sqrt{9}$
$36 \cdot 3$
$144 = x^2 + 108$
$-108 \quad -108$
$\sqrt{36} = \sqrt{x^2}$
$6 = x$

Find AE.

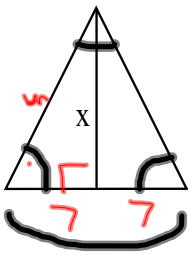


$x^2 = 3^2 + 4^2$
$\sqrt{x^2} = \sqrt{9+16}$
$\sqrt{x^2} = \sqrt{25}$
$x = 5$

$x^2 = 5^2 + 12^2$
$x^2 = 25 + 144$
$\sqrt{x^2} = \sqrt{169}$
$x = 13$



Find x.



14

HW
p195-197
8, 14, 16-18, 35, 36

Attachments

Pythagoras.gsp